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**USACE / NAVFAC / AFCESA** **UFGS-L-02951N (MARCH 2001)**

**Preparing Activity: LANTNAVFACENGCOM**

**UNIFIED FACILITIES GUIDE SPECIFICATIONS**

**Use for LANTNAVFACENGCOM projects only**
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SECTION 02951N

PAVEMENT REMOVAL AND REPLACEMENT

**09/99**


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SECTION 02951N

PAVEMENT REMOVAL AND REPLACEMENT
**09/99**

**********

**NOTE: This guide specification covers the requirements for the removal of existing pavement and the provisions of new pavement where trenches, pits, or other excavations are made in existing pavement in Virginia, North Carolina, Maryland, the District of Columbia, West Virginia, and Puerto Rico. Pavement patching of bituminous concrete pavement and portland cement concrete pavement for both roads and parking lots as well as for airfield pavement is specified herein.**

**NOTE: Suggestions for improvement of this specification will be welcomed using the Navy "Change Request Forms" subdirectory located in SPECSINTACT in Jobs or Masters under "Forms/Documents" directory or DD Form 1426. Suggestions should be forwarded to:**

**Commander**
**Naval Facilities Engineering Command**
**Engineering Innovation and Criteria Office, Code EICO**
**1510 Gilbert Street**
**Norfolk, VA 23511-2699**

**Email: LantDiv@efdlant.navfac.navy.mil**

**Use of electronic communication is encouraged.**

**Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.**

**********

**********

**NOTE: The following information shall be shown on the project drawings:**

**1. Type of existing pavement with thickness of existing surface course and base.**

**2. Detail of pavement patch.**

**********

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | |
|---|---|
| ASTM D 698 | (1991) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m)) |
| ASTM D 1557 | (1991) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m)) |

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION (DCDOT)

| | |
|---|---|
| DCDOT HS | (1974; R 1981) Highways and Structures |

DEPARTMENT OF TRANSPORTATION (DOT)

| | |
|---|---|
| DOT D-6.1 | (1988) Uniform Traffic Control Devices for Streets and Highways |

FEDERAL SPECIFICATIONS (FS)

| | |
|---|---|
| FS SS-S-200 | (Rev. E; Am. 2) Sealants, Joint, Two-Component, Jet-Blast Resistant, Cold-Applied, For Portland Cement Concrete Pavement |

MARYLAND DEPARTMENT OF TRANSPORTATION (MDOT)

| | |
|---|---|
| MDOT CM | (1993) Construction and Materials |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT)

| | |
|---|---|
| NCDOT RS | (1995) Roads and Structures |

COMMONWEALTH OF PUERTO RICO, DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, HIGHWAY AUTHORITY (PRHA)

| | |
|---|---|
| PRHA RBC | (1989) Road and Bridge Construction |

VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

| | |
|---|---|
| VDOT RBS | (1994) Road and Bridge Specifications |

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION (WVDT)

| | |
|---|---|
| WVDT DHSSRB | 1993 Division of Highways Standard Specifications Road and Bridges |

## 1.2 SUBMITTALS

**********
**NOTE: Where a "G" in submittal tags follows a submittal item, it indicates Government approval for that item. Add "G" in submittal tags following any added or existing submittal items deemed sufficiently critical, complex, or aesthetically significant to merit approval by the Government. Submittal items not designated with a "G" will be approved by the QC organization.**
**********

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-05 Design Data

**********
**NOTE: Delete submittal item if NFGS-L-02741, "Bituminous Concrete Pavement" is used.**
**********

Job mix formula

SD-07 Certificates

Stone Base Course

## 1.3 QUALITY ASSURANCE

### 1.3.1 Modification to References

**********
**NOTE: Select bracketed State reference based on the location of the project.**

**********

Except as specified herein, work and materials shall be in accordance with the [VDOT RBS] [NCDOT RS] [MDOT CM] [DCDOT HS] [PRHA RBC][WVDT DHSSRB]. The provisions therein for method of measurement and payment do not apply, and references to "Engineer" and "State" shall mean the "Contracting Officer" and the "Federal Government" respectively.

1.3.2 Job Mix Formula

**********

**NOTE: Select bracketed State reference based on the location of the project.**

**********

Submit the mix design, including mixing temperature, for approval. The bituminous mix design shall include a certified laboratory analysis of mix composition with marshall stability value, void content, and flow. After mix design approval, job mixes shall conform to the range of tolerances specified in [VDOT RBS] [NCDOT RS] [MDOT CM] [DCDOT HS] [PRHA RBC] [WVDT DHSSRB].

1.4 BARRICADES AND SIGNALS

**********

**NOTE: Include the first bracketed item if pavement patching will be done on a major road or near an entrance to a military base. Edit the second bracketed item based on job conditions.**

**********

Provide and maintain temporary signs, signals, lighting devices, markings, barricades, and channelizing and hand signaling devices [in accordance with DOT D-6.1] to protect personnel and new construction from damage by equipment and vehicles until the surface is approved by the Contracting Officer. [Work shall be conducted to permit a minimum of one traffic lane on two lane streets, and two traffic lanes on four lane streets, to be open for traffic at all times.]

PART 2 PRODUCTS

2.1 MATERIALS

**********

**NOTE: Reference NFGS-L-02741, "Bituminous Concrete Pavement" where materials are the same.**

**********

2.1.1 Bituminous Concrete

**********

**NOTE: Select bracketed State reference based on the location of the project.**

**********

[VDOT RBS, Section 211, Type SM-2A] [NCDOT RS, Section 645, Type I-1] [MDOT CM, Section 904.06, Type SC] [DCDOT HS, Section 402, Class C Surface Course] [PRHA RBC, Specification 401, Type S-1] [WVDT DHSSRB, Section 401, Wearing 1] for material and mix. Provide crushed stone aggregate for the

bituminous mix. [For airfield pavement, the mix shall be modified to provide a minimum marshall stability of 816 kg at 60 degrees C 1800 pounds at 140 degrees F using 75 blows of the hammer to each flat face of the specimen, and a flow of 2.03-4.06 mm 0.08-0.16 inch.]

2.1.2 Stone Base Course

**********
**NOTE: Select bracketed State reference based on the location of the project.**
**********

[VDOT RBS, Section 208, Type 1, size no. 21A, 21B, or 22.] [NCDOT RS, Sections 1005 and 1010 for aggregate base course, standard size no. ABC.] [MDOT CM, Section 901.01, graded aggregate base.] [DCDOT HS, Section 802.04.] [PRHA RBC, Specification 703-4, Grading Class A or B.] [WVDT DHSSRB, Section 704, Size No. 1 for aggregate base course.]

[2.1.3 Bituminous Tack Coat

**********
**NOTE: Select bracketed State reference based on the location of the project.**
**********

[VDOT RBS, Section 310.] [NCDOT RS, Section 605.] [MDOT CM, Section 904.05.] [DCDOT HS, Section 401.02.] [PRHA RBC, Specification 407.] [WVDT DHSSRB, Section 408 and Section 705.4.] Emulsified asphalts shall be diluted at the rate of one part water to one part asphalt.

]PART 3 EXECUTION

3.1 PAVEMENT INSTALLATION

The work includes the removal of existing pavement and the provision of new pavement where trenches, pits, and other excavations are made in the existing pavement. Except as otherwise indicated, the restored pavement area shall be the same kind and thickness as previously existed, and shall match and tie into the surrounding pavement in a neat and acceptable manner.

3.2 ROADS AND PARKING AREAS

3.2.1 Pavement Removal

**********
**NOTE: Select bracketed items based on job requirements (patching of bituminous concrete pavement vs. patching portland cement concrete pavement vs. patching portland cement concrete pavement overlaid with bituminous material.**
**********

Make a straight line sawcut 300 mm 12 inches beyond the edge of the excavation to a minimum depth of [50 mm2 inches for bituminous concrete pavement] [and] [150 mm6 inches for portland cement concrete pavement]. [Portland cement concrete pavement overlaid with bituminous concrete shall be sawcut to a minimum depth of 200 mm 8 inches.] The pavement shall be broken up and removed, along with its base and subgrade, to the depth indicated or specified.

3.2.2 Subgrade Placement

Provide as specified in Section [02315N, "Excavation and Filling."]

3.2.3 Stone Base Placement

Provide a stone base course a minimum of [200] mm [8] [_____] inches thick, unless indicated otherwise. Place the stone base in two equal lifts, with each lift compacted to 100 percent ASTM D 698 maximum density. At the Contractor's option, bituminous concrete may be provided in lieu of stone base material.

3.2.4 Bituminous Concrete Placement

**********
**NOTE: Select bracketed State reference based on the location of the project.**
**********

Provide a tack coat on the exposed edges of the cold joints and on the bituminous concrete base when provided, and provide [50] mm a minimum [2] [_____] inch thick bituminous concrete surface course, unless indicated otherwise, in accordance with [VDOT RBS] [NCDOT RS] [MDOT CM] [DCDOT HS] [ PRHA RBC] [WVDT DHSSRB]. Place in maximum of 50 mm 2 inch lifts with each lift compacted to 96 percent of maximum laboratory density. The finished surface shall be uniform in texture and appearance and free of cracks and creases.

3.2.5 Portland Cement Concrete Pavement

Provide as specified in Section 03300N, "Cast-in-Place Concrete." Provide reinforcing [as indicated] [to match existing reinforcing]. The concrete surface shall be struck off, screeded, tamped, and finished to the same surface elevation and texture as the adjacent existing concrete. Cure concrete for 7 days. Maintain existing joint patterns.

[3.2.6 Bituminous Concrete Overlay

For portland cement concrete pavement overlaid with bituminous concrete pavement, provide the portland cement concrete pavement and bituminous concrete pavement as specified above, except provide a tack coat at the rate of 0.453 liters of residual asphalt per square meter 0.10 gallon of residual asphalt per square yard on the restored portland cement concrete base. Allow tack coat to become tacky prior to bituminous concrete placement. Apply the tack coat and bituminous concrete pavement only when the portland cement concrete base surface is clean and dry, and has cured for a minimum of 7 days.

]3.3 AIRFIELD PAVEMENT

3.3.1 Airfield Pavement Removal

Make a straight line sawcut 300 mm 12 inches beyond the edge of the excavation to a minimum depth of three-quarter the pavement thickness. The pavement shall be broken up and removed, along with its base and subgrade, to the depth indicated or specified.

3.3.2 Airfield Subgrade Placement

Provide as specified in Section [02315N, "Excavation and Fill."]

3.3.3 Airfield Stone Base Placement

Provide a stone base course a minimum of [300] [_____] mm [12] [_____] inches thick, unless indicated otherwise. Place the stone base in two equal lifts, with each lift compacted to 100 percent ASTM D 1557 maximum density. At the Contractor's option, bituminous concrete may be provided in lieu of stone base material.

3.3.4 Airfield Bituminous Concrete Placement

**********
**NOTE: Select bracketed State reference based on the location of the project.**
**********

Provide a tack coat on the exposed edges of the cold joints and on the bituminous concrete base when provided, and provide [100] [_____] mm a minimum [4] [_____] inch thick bituminous concrete surface course, unless indicated otherwise, in accordance with [VDOT RBS] [NCDOT RS] [MDOT CM] [ DCDOT HS] [PRHA RBC] [WVDT DHSSRB]. Place in maximum of 50 mm 2 inch lifts with each lift compacted to 97 to 100 percent of maximum laboratory density. The finished surface shall be uniform in texture and appearance and free of cracks and creases.

3.3.5 Airfield Portland Cement Concrete Pavement

Provide as specified in Section [03300N, "Cast-In-Place Concrete."] [02751N, "Reinforced Cement Concrete Pavement for Roads and Airfields."] Provide new reinforcing [as indicated] [to match existing reinforcing]. The concrete surface shall be struck off, screeded, tamped, and finished to the same surface elevation and texture as the adjacent existing concrete. Cure concrete for 7 days. Maintain existing joint patterns. Provide FS SS-S-200 joint sealant.

3.3.6 Airfield Bituminous Concrete Overlay

For portland cement concrete pavement overlaid with bituminous concrete pavement, provide the portland cement concrete pavement and bituminous concrete pavement as specified above, except provide a tack coat at the rate of 0.453 liters of residual asphalt per square meter 0.10 gallon of residual asphalt per square yard on the restored portland cement concrete base. Allow tack coat to become tacky prior to bituminous concrete placement. Apply the tack coat and bituminous concrete pavement only when the portland cement concrete base surface is clean and dry, and has cured for a minimum of 7 days.

3.4 MATERIAL DISPOSAL

**********
**NOTE: Choose one of the following options. Choose the first option if the specified specification section will be included in the final project specification. Choose the second option if the specified specification section will not be included in the final project specification.**
**********

[Provide as specified in Section 02220N, "Site Demolition."] [Pavement, base, and subgrade materials that have been excavated shall be [disposed of off Government property] [deposited at the station disposal area, as directed by the Contracting Officer, within a haul distance of [_____] miles from the work site].]

-- End of Section --